REMARKS

The Office Action dated July 8, 2003 has been received and carefully noted. The above amendments and the following remarks are submitted as a full and complete response thereto. By this Amendment, claim 1 has been further amended to more clearly particularly point out and distinctly claim the invention. Claim 17 has been newly added. No new matter has been added. Accordingly, claims 1-17 are pending in this application and are submitted for consideration.

Claims 1-10 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Park et al. (U.S. Patent No. 6,372,354, "Park") in view of Leenders et al. (U.S. Patent No. 6,366,013, "Leenders"). In making this rejection, the Office Action took the position that Park discloses all the elements of the claimed invention, except for disclosing the exact range of surface electrical resistance and the extract range of Y value obtained by 5 degree specular reflectance, and use of a hard coat comprising a UV curable acrylic resin. Applicants respectfully submit that claims 1-10 and 16 recite subject matter neither disclosed nor suggested by ay combination of the prior art.

Applicants' amended independent claim 1 recites an anti-static film for a display, including a monolayer structure hard coat layer provided on the surface of a transparent substrate directly or via another layer. The hard coat layer contains at least UV curable resin, conductive material, and low refractive index material, surface electric resistance thereof is 1.0×10^{11} Ω/□ or less, and the Y value thereof obtained by 5 degree specular reflectance is 4.0% or less.

In making this rejection, the Office Action took the position that Park discloses all of the elements of the claimed invention. However, it is respectfully submitted that the

prior art fails to disclose or suggest the structure of the claimed invention, and therefore, fails to provide the advantages of the present invention. For example, the monolayer hard coat layer of the present invention is configured to have a surface electric resistance of 1.0×10^{11} Ω/□ or less or less, and a Y value thereof obtained by 5 degree specular reflectance of 4.0% or less is obtained.

As a result of the claimed configuration, an anti-static film is provided with a hard coat layer having superior optical and physical properties, and anti-static properties are maintained. Additionally, reflectivity is reduced and interference uneveness is prevented.

The anti-static film for a display according to the present invention is characterized in that a monolayer hard coat layer is provided on the surface of a transparent substrate directly or via another layer. The hard coat layer includes at least UV curable resin, a conductive material, and low refractive index material. A surface electric resistance thereof is 1.0×10^{11} Ω/□ or less, and the Y value thereof obtained by 5 degree specular reflectance is 4.0% of less. Thus, in the anti-static film of the present invention, a hard coat layer having superior optical, physical, and anti-static properties is formed by a coating material, in which the conductive material and the low refractive index material are dispersed in the UV curable resin. In particular, the anti-static film has superior adhesiveness between the transparent substrate and the hard coat layer, as well as superior durability such as wear resistance.

In contrast, Park discloses a composite coating having anti-reflective and anti-static properties. The composite coating is constructed by coating a high index first layer including ITO and a low index second layer including SiO_2 on a hard coat layer in

order. (See for example, claims 1, 3, and 10-12 and also col. 5, line 23 - col. 6, line 22, col. 7, lines 26-31, col. 8, lines 9-18 and Fig. 1). Therefore, the composite coating disclosed by Park has a multilayer structure.

Furthermore, as discussed in the "Background of the Invention" section of Applicants' specification, when a low refractive index layer and a high refractive index layer are laminated in the same manner as Park, there is a problem in which interference unevenness occurs due to increase in the difference between refractive indexes of the layers. Therefore, the present invention also attains to maintain superior anti-reflective properties and to prevent the above interference unevenness in optical films by forming as a monolayer structure.

The Office Action took the position that it would have been obvious to one having ordinary skill in the art of liquid crystals to modify the LCD of Park with hard coat of UV curable acrylic resin of Leenders to improve the indentation strength of the surface. However, as discussed above, Park fails to disclose the claimed invention. Leenders fails to cure the above-noted deficiencies of Park.

Furthermore, the reflectance shown in Fig. 2 of Park displays wavelength characteristics on the surface of the low index second layer (a SiO_2 layer). However, in the case in which a hard coat layer having light transparency is provided thereon, reflection on the interference between the low index second layer and a lower layer thereof affects the reflectance on the surface of the low index second layer, as shown in Fig. 1 of Park. Therefore, it is clear that reflectance of the low index second layer in the multilayer structure of Park, which consists of three layers is completely different from that of the hard coat layer in the monolayer structure consisting of one mixed layer of

the present invention. Still further, because of the multilayer structure, Park cannot obtain superior adhesiveness, which is a benefit of the presently claimed invention, even if such multi-layer structure in Park is applied thereto.

Additionally, Park discloses that ITO is embedded into the hard coat layer by for example, a spin method, which is not a general coating method for a coating solution as is the method used in the present invention. Therefore, it is clear that the multilayer structure and the optical property of a coating film embedded by the spin method are different from those of a hard coat layer formed as a monolayer by coating material dispersing ITO and silica into resin, as in the present invention. Thus, Park fails to disclose or suggest the anti-static film for a display according to claim 1 of the present invention.

Still further, the Office Action took the position that although Park does not explicitly disclose the exact range of surface electrical resistance and the exact range of Y value obtained by 5-degree specular reflectance, the ranges taught by Park are within respective claimed ranges, as shown in Fig. 2 of Park. The Office Action asserted that it would have been obvious to one of ordinary skill in the art to use the claimed ranges of the present invention for surface electrical resistance and 5-degree specular reflectance. However, the Office Action has failed provide motivation as to why one of ordinary skill in the art would be compelled to make such a modification. Therefore, Applicants submit that this is impermissible hindsight because the only rationale for making such a combination was gleaned only from Applicants' specification.

Additionally, upon review of Applicants' specification, it is discussed that when the surface electric resistance of the hard coat layer exceeds 1.0×10^{11} ohms per

square, a superior anti-static property is not obtained, and in addition, when the Y value exceeds 4.0%, a problem occurs in which interference unevenness is substantial. Therefore, in accordance with MPEP § 2144.05(III), Applicants' specification attributes a specific purpose to these ranges. Thus, these ranges are not mere design choices.

Claim 3 of the present invention further recites that the low refractive index material is contained at 15 to 200 weight parts to 100 weight parts of the conductive material. When the mixing ratio is below 15 weight parts, refractive index of the hard coat layer is insufficiently lowered, and therefore interference unevenness cannot be improved. Thus, according to the present invention, by setting the mixing ratio as claimed, interference unevenness on the surface can be improved without affecting the anti-static property.

In contrast, in the Office Action, it was asserted that the mixing ratio is shown in Table 1 in col. 8 of Park. The Office Action stated that the percentage of conductive material is disclosed in the first column of Table 1 of Park as well as the coating thickness, which he equates to the claimed mixing ratio. The Office Action concluded that Applicants' claimed mixing ratio is easily derived from the percentage and thickness values. However, the numerical values described in Table 1 of Park indicate concentrations of coating solutions, which are completely irrelevant to the mixing ratio.

Additionally, in Park, the thickness of the ITO layer and the SiO_2 layer are described. However, the mixing ratio is not described, and, in particular, the prevention effect of the interference unevenness has not been described or suggested. The mixing ratio between low refractive index material and conductive material specified in the present invention is not addressed by Park since the composite coating disclosed by

Park contains low refractive index material and conductive material in different layers, respectively. Furthermore, it is clear that mixing ratio of materials in the multilayer structure of Park is completely different from that of materials in the monolayer structure consisting of one mixed layer of the present invention.

In addition, in Example 3 of Park, it is clear that a structure consisting of three layers is formed and that the structure is not a monolayer structure, since it was described that "the substrates with the hardcoat/ITO/silica are baked at 100°C". Thus, properties in the three-layers structure of Park such as optical properties, etc., are different from those in the monolayer structure of the present invention which is mixed with materials used in each layer of Park. Therefore, it is clear that ratio of thicknesses of layers in the three-layers structure described in Table 1 and column 8 of Park is not correlated with mixing ratio of materials mixed in the monolayer of the present invention.

In sum, Park fails disclose or suggest the present invention and also fails to achieve the benefits and advantages of the present invention. Thus, it is respectfully submitted that the Applicants' invention, as set forth in claim 1, is not obvious within the meaning of 35 U.S.C. § 103.

Still further, as claims 2-10 and 16 depend directly or indirectly from claim 1, Applicants respectfully submit that each of these claims incorporate the patentable aspects thereof, and are therefore allowable for at least same reasons as discussed above.

Therefore, it is respectfully submitted that the Applicants' invention, as set forth in claims 1-10 and 16 is not obvious within the meaning of 35 U.S.C. § 103.

Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Leenders, as applied to claims 1-10 and 16, in view of Hahn et al. (U.S. Patent No. 4,422,721, "Hahn"). This rejection is respectfully traversed.

The Office Action took the position that it would have been obvious to one of ordinary skill in the art of liquid crystals to modify the LCD of Park in view of Leenders with the additional colored layer(s) of Hahn to compensate for the color of the conductive material in order to maintain achromatic low reflectivity. However, Hahn fails to cure the deficiencies of the combination of Park and Leenders.

Additionally, as claims 11-15 depend directly or indirectly from claim 1, Applicants respectfully submit that each of these claims incorporate the patentable aspects thereof, and are therefore allowable for at least same reasons as discussed above.

Therefore, it is respectfully submitted that the Applicants' invention, as set forth in claims 11-15 is not obvious within the meaning of 35 U.S.C. § 103.

Furthermore, newly added claim 17 further recites that a total amount of the conductive material and the low refractive index material in the hard coat layer in claim 3 is limited to 10 to 80% by weight. Therefore, it is clear that the limitation of mixing ratio, which considers also ratio of resin, is not disclosed nor suggested in any combination of the prior art.

Thus, it is respectfully submitted that newly added claim 17 is also patentable over the prior art.

Thus, it is respectfully submitted that the Applicants' invention, as set forth in claims 1 and 3, are not obvious within the meaning of 35 U.S.C. § 103.

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejections, allowance of claims 1-17, and the prompt issuance of a Notice of Allowability are respectfully solicited.

If this application is not in condition for allowance, the Examiner is requested to contact the undersigned at the telephone listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 108421-00013.**

Respectfully submitted,
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